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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/054,881

01/25/2002

Naoki Imahori

2002-0063A

5452

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7590

04/10/2003

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EXAMINER

YAM, STEPHEN K

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Applicati n No.

10/054,881

Applicant(s)

IMAHORI ET AL.

Examiner

Stephen Yam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2002 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. Claim 3 is objected to because of the following informalities:  
In Claim 3, "the former data" and "the latter data" lack proper antecedent basis.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:  

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
2. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomson et al. US Patent No. 5,880,954.

Thomson et al. teach (see Fig. 1) a sensor comprising a plurality of sensor sets (111) (see Col. 20, lines 14-20), each sensor set being composed of transmission means (101) and receiving means (102) located opposite to each other across an object detection area, so that the sensor determines the presence or absence of an object within the object detection area depending on whether a light beam emitted from each transmission means is received by the receiving means of the same sensor set (see Fig. 1 and Col. 2, lines 45-53), data acquisition means (200) for acquiring light acceptance data sent from each receiving means. Thomson et al. also teach detecting an improperly installed sensor where the sensors or connections are

mismatched (see Col. 13, lines 7-9), therefore requiring a technician to correct the coupling of the sensors. Regarding Claim 2, Thomson et al. teach the sensor having two sensor sets (see Fig. 1), and inherently if there is an improperly switched connection (wire terminal mix-up), at least two sensors are improperly connected and are switched back to the correct orientation. Thomson et al. do not teach data exchange means for exchanging light acceptance data sent from one of the receiving means with those sent from any of the other receiving means, in order that the data acquisition means can acquire predetermined light acceptance data which concern a light beam emitted from one of the transmission means and which are received by the opposite receiving means, the data exchange action being carried out in the case where the data acquisition means fails to acquire the predetermined light acceptance data, provided that the transmission means emits a light beam in the absence of an object within the object detection area. It is well known in the art to use an electronic switchbox for switching signals from different data-carrying cables instead of manually exchanging the cables by hand. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a data exchange means for exchanging light acceptance data in the sensor of Thomson et al., to correct an improperly installed cable without requiring the manual task of detaching and re-attaching cables.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thomson et al. in view of Denton US Patent No. 4,520,262.

Thomson et al. teach the sensor as taught in Claim 1, according to the appropriate paragraph above. Thomson et al. do not teach each of the transmission means one-by-one

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emitting a light beam, wherein the data exchange means exchanges light transmission data sent from receiving means which receives the greatest amount of light, with those sent from receiving means located opposite to the transmission means which emits a light beam, in order that the data acquisition means can acquire the former data as the latter data. Denton teaches (see Fig. 1 and 2) a sensor with a plurality of sensor sets with transmission means (1) and receiving means (2) located opposite each other where each of the transmission means one-by-one emits a light beam (see Col. 1, lines 64-69). In addition, it is well known in the art to sense light from all receivers and use the detector with the greatest amount of light, to provide optimal detection of an object in the detection area. It would have been obvious to one of ordinary skill in the art at the time the invention was made emit light beams one-by-one as taught by Denton and to exchange the data in the data acquisition means according to the receiving means with the greatest amount of light in the sensor of Thomson et al., to provide optimal sensitivity for the sensor and correct the wire terminal mix-up problem identified by Thomson et al. (see Col. 13, lines 6-9).

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (703)306-3441. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on (703)308-4852. The fax phone numbers for the


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organization where this application or proceeding is assigned are (703)308-7724 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

SY

SY  
April 6, 2003

  
DAVID PORTA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800